

SCHOOL DISTRICT OF SOUTH ORANGE AND MAPLEWOOD, NEW JERSEY
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MEMORANDUM

TO: Members, Board of Education

FM: Peter P. Horoschak, Superintendent

DT: February 2006

RE: BUDGET ANALYSIS #11 – ENERGY

The Board of Education requested a report on possible short-term and long-term approaches to achieve additional reductions in energy costs beyond those realized during the prior 5-year conservation program.

An August 31, 2005 memo from Karla Milanette to the Board warned of the looming energy crisis. Alarming newspaper articles warned of higher natural gas bills, even before the devastation of Hurricane Katrina. According to an ASBO International survey conducted in August, 96% of school business officials surveyed agree that "the rising cost of fuel is adversely affecting [their] school district." Our district is no exception and the impact is anticipated to be very significant.

We converted district boilers from oil to gas about 10 years ago as a cost savings measure. We joined a consortium of school districts and have purchased natural gas from a third party supplier, Amerada Hess, for a fixed price at a significant savings. The September unit price was \$0.69. Expenditures to Amerada Hess for natural gas in 2004-05 were about \$587,000. The contract with Amerada Hess expired in October 2005.

August 15 we were notified that the contract with Amerada Hess would not be renewed due to the recent volatility of the natural gas markets. School districts have the option to purchase natural gas, electricity, and fuel oil from a public utility but Public School Contracts law prohibits districts from entering into a contract with a third-party supplier without competitively bidding. Energy For America, Inc., the firm that had conducted the procurement for the consortium, is no longer interested in providing that assistance because they do not have commodity trading resources to conduct a bid in this volatile market. Bidding for commodities is a very complex process.

PSE&G was notified that we would be returning to their natural gas service after the meter reading in October. The move requires a one-year commitment. They recently received approval for a 10.6% increase. At least one, and maybe two more increase requests are expected this year according to our PSE&G account manager. PSE&G's prices are high and rising because they include a market-based commodity charge. The

commodity charge is based on the NYMEX closing on the last day of the prior month for the following month. The PSE&G commodity charge for August was \$1.02 and for September it is \$1.37, double our current price with Amerada Hess. Natural gas future quotes indicate continuing increases, at least until March 2006.

Obviously, we budgeted an increase for 2005-06 but we anticipated about a 12% increase, not that costs would double. Although the volatility makes it difficult to predict at this time, it is clear there will be a shortfall of \$500,000-\$700,000. Once the extent of the shortfall is known, we anticipate fund balance will need to be appropriated to cover the difference. It appears our options are somewhat limited by the Public School Contracts law.

What are we doing?

- We also purchase electricity from a third party supplier, South Jersey Energy, as members of another consortium, ACES. ACES is launching a gas procurement effort for New Jersey school districts. We have indicated our interest in participating in that bid. However, according to ACES, the bidding process will probably not be completed until March. We can't expect much relief for this winter.
- I have discussed with a couple of energy consulting firms the possibility of the district bidding independently. The process is so complex and requires such expertise that it is only worthwhile to them to conduct a procurement for a group of school districts.
- Six Essex County school districts that were not part of the EFA consortium formed a cooperative a few years ago. The Coop contracts with a consulting firm to conduct their procurement of natural gas. The Coop's contract also expired and they issued a Request for Bids twice. Their bidding process was too far along by the time we learned that our contract with Hess was not being renewed for us to participate in the Coop bid. The Coop rejected the bids they received both times and have elected to sign on with PSE&G for a year in hopes that the market will recover.
- Leadership staff was alerted that energy conservation is essential.
- We are looking for ways to reduce consumption. Aramark has a facilities engineering and technical services division that offers energy management services. Their team of energy experts has conducted an extensive energy audit of three of our facilities to identify things we can do in the short-term, as well as long-term to conserve energy.

As predicted, winter gas and electric bills are increasing in staggering proportions of more than 100%. (See attachment)

ENERGY AUDIT

As noted in numerous reports, the next phase of the Long-range Facilities Plan, after “sealing the building envelope”, is to address concerns that will improve the environmental comfort and result in substantial savings in the annual energy budget. It is strongly believed that the district could benefit from an aggressive program of energy upgrades. As a first step in that direction, the district has engaged a number of energy services companies in discussions about conducting an energy audit. We are still waiting for feedback from one firm that began looking at our facilities last November. Another firm, ARAMARK, has completed its initial analysis and proposed an energy efficiency improvement program.

ARAMARK’s engineering and technical services division conducted a detailed assessment of the energy usage and the status of three facilities, Maplewood Middle School, South Orange Middle School and Columbia High School. These schools were selected because they are the largest and represent the greatest utility usage. All schools were not analyzed because of the depth of the analysis conducted. The review of just the three schools represented a major investment by ARAMARK. It was believed that the data collected from those three would be sufficient to adequately project savings potential from improvements to all the schools. Most studies of this nature cost thousands of dollars

The review of these three schools was exhaustive. A technical engineer logged more than 300 hours surveying the buildings, collecting data and analyzing the results. His work was thorough and impressive and included compiling previous billings and usage (we have something like 89 accounts) across time and a detailed room-by-room look. As an aside, much of the data is being incorporated into School Dude to determine the actual cost for community usage of our facilities for more accurate accounting and billing.

The ARAMARK team has presented some of their initial findings and observations:

District Challenges:

- Utility costs have risen dramatically and are projected to continue climbing
- Many building systems are beyond life cycle
- Custodial and maintenance staff need more training to improve overall operations
- There is a reliance on outside vendors to accomplish maintenance activities.

District Goals:

- Reduce operating costs and protect current and near-term investment in infrastructure
- Continue capital renewal program creating highest level of impact on deferred need
- Create synergies between custodial and maintenance functions to create efficiencies
- Utilize improved facilities to enhance learning environment

Assessment Process:

- Collected utility bill data for all schools
- Analyzed and benchmarked individual schools and district

- Conducted preliminary surveys of three schools
- Over 300 man hours of surveying buildings and data collection to identify energy project opportunities
- Conducted engineering analysis to define savings potential and investment cost
- Developed conceptual proposal for discussion

FY 2004-05 Cost and Consumption Summary:

Anomalies were identified indicating opportunities for improvement

- Consumption (MMBTU)

	SOMSD	Normal
Electric	21%	33%
Fossil Fuel	79%	67%

- Cost (\$)

	SOMSD	Normal
Electric	43%	67%
Fossil Fuel	57%	33%

Energy Observations:

- Buildings have limited to no control of heating equipment
- Majority of mechanical equipment has reached or exceeded its expected service life
- Heating systems do not have night setback capabilities
- Condensate return systems were not functioning properly
- Loss of domestic water at hot water storage tank at CHS and SOMS
- Pneumatic control systems in need of calibration

Energy Opportunities:

- Install/upgrade basic building controls system to better regulate heat distribution
- Develop operating protocols for all HVAC systems to maximize energy efficiency
- Repair distribution system to maximize efficiency
- Selected replacement of aged/inefficient equipment
- Enhance automation system for improved setback capabilities during low occupancy periods
- Additional training and standardization for operations and custodial staff

Proposed Program Elements:

- Synergize with existing custodial program
- Turnkey energy project implementation
- Five-year program term
- Implementation by local Energy Project Engineer
- Engineering and Utility Procurement Support
- Analytical support and performance monitoring
- Energy education and training program
- \$280,000 net savings over five-year term

Conceptual Program Outcomes:¹

- Required \$325,000 initial energy capital investment by district
- Guaranteed \$280,000 total net savings over five years
- Energy investment will eliminate estimated \$150,000 annual maintenance
- \$350,000 annual cost avoidance rate at end of 5-year term (based on 3% utility rate escalation)
- Improved thermal comfort of building spaces and system reliability
- *UtiliStar*TM energy data base – accurate utility cost and consumption reporting

Additional Opportunities

ARAMARK can also provide the following services to assist the district in controlling energy costs over the long term:

- Energy efficiency standard for capital projects and building renovations
- Technical assistance during the design phase to maximize energy efficiency in capital projects.
- Project management services

RECOMMENDATION

It is recommended that the Finance and Facilities Committee meet with ARAMARK and consider the energy management concepts proposed for long-term improvements. Once satisfied that the concepts are valid, it is recommended that the initial \$325,000 investment be funded in a separate proposal to the 2006-07 budget. Upon approval of the concept, the district, through the Finance and Facilities Committee, would design a customized Energy Efficiency Improvement program, develop specifications, and competitively bid to contract for management services for the five-year program to begin during the 2006-07 school year.

¹ Net savings based on 2004-05 data. Actual savings likely will be greater given significant increases in 2005-06 and anticipated for 2006-07.